

## Notice of Allowability

Application No.

10/707,299

Examiner

Elizabeth A. Rielley

Applicant(s)

CHEN ET AL.

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2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 9/22/2005.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

Amendment filed 9/22/2005 has been entered and considered by the Examiner. Claims 12-15 have been added. Currently, claims 1-15 are pending in the instant application.

### ***Allowable Subject Matter***

Claims 1-15 are allowed.

Regarding claim 1, the reference of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 1, and specifically comprising the limitation an organic light emitting device, comprising; a first mixing layer formed over an anode layer, wherein a material of the first mixing layer is a mixture of a hole transport material and an electron transport material; a mixing layer formed on the first mixing layer; wherein a material of the mixing layer is a mixture of an organic light emitting material, the hole transport material and the electron transport material; a second mixing layer formed on the mixing layer, wherein a material of the second mixing layer is a mixture of the hole transport material and the electron transport material; and a cathode layer formed over the second mixing layer; wherein, when a volume ratio of the hole transport material to the electron transport materials in the mixing layer is X %, a volume ratio of the hole transport material to the electron transport materials in the first mixing layer decreases gradually from 99% to X % starting from a surface adhered to the anode layer, wherein a volume ratio of the hole transport material to the electron

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transport material in the second mixing layer increases gradually from X % to 99% starting from a surface adhered to the mixing layer.

Regarding claims 2-6, claims 2-6 are allowable for the reasons given in claim 1 due to their dependency status from claim 1.

Regarding claim 7, the reference of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 7, and specifically comprising the limitation an organic light emitting device comprising: a hole transport layer formed over an anode layer; a mixing layer formed on the hole transport layer; wherein a material of the mixing layer is a mixture of an organic light emitting material, a hole transport material and an electron transport material, wherein a volume ratio of the hole transport material to the electron transport material in the mixing layer decreases gradually from 99% to 1% from the surface adhered to the hole transport layer; a second mixing layer comprising a mixture of an electron transport material and a hole transport material formed on the mixing layer; and a cathode layer formed over the electron transport layer.

Regarding claims 8-11, claims 8-11 are allowable for the reasons given in claim 7 due to their dependency status from claim 7.

Regarding claim 12, the reference of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 12, and specifically comprising the limitation an organic light emitting device comprising: a hole transport layer formed over an anode layer; a mixing layer formed on the hole transport layer; wherein a material of the mixing layer is a mixture of an organic light emitting material, a hole transport material and an electron transport material, wherein a volume

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ratio of the hole transport material to the electron transport material in the mixing layer decreases gradually from 99% to 1% from the surface adhered to the hole transport layer; a second mixing layer comprising a mixture of an electron transport material and a hole transport material formed on the mixing layer; an electron injection layer between the second mixing layer and the cathode layer; and a cathode layer formed over the electron transport layer.

Regarding claims 13-15, claims 13-15 are allowable for the reasons given in claim 12 due to their dependency status from claim 12.

### ***Response to Arguments***

Applicant's arguments, see amendment, filed 9/22/2005, with respect to claims 1-11 have been fully considered and are persuasive. The rejection of claims 1-11 has been withdrawn.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth A. Rielley whose telephone number is 571-272-2117. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

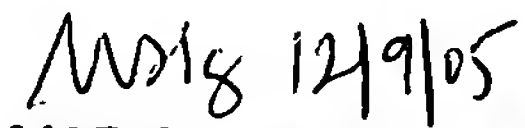
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**Elizabeth Rielley**

**Examiner**  
**Art Unit 2879**

  
**MARICELI SANTIAGO**  
**PRIMARY EXAMINER**